

CLAIMS

1. A DC adapter which is connected to an AC/DC converter and is inserted into a battery housing portion of an electronic apparatus so as to supply the electronic apparatus with a DC power, wherein

a substantially cylindrical adapter main body has an insertion limiting portion which is guided by an insertion guide portion of the battery housing portion when the DC adapter is inserted into the battery housing portion with the proper polarity, and comes into contact with the insertion end side wall of the battery housing portion when the DC adapter is inserted into the battery housing portion with the reversed polarity so as to limit the insertion of the DC adapter, and

the insertion limiting portion being formed by projecting a part of the outer circumference of the cylindrical main body in a rectangular manner along the longitudinal direction of the main body and having two sides each of which extends from a part of the outer circumference of the DC adapter, wherein the center angle of the circular arc obtained by connecting the proximal ends of the two sides on the outer circumference of the DC adapter is less than 90°.

2. The DC adapter according to claim 1, wherein the vertex of the insertion limiting portion is chamfered in a circular arc.

3. The DC adapter according to claim 1, wherein the adapter main body is formed by arranging a plurality of cylindrical bodies in the direction perpendicular to the longitudinal direction, and an electrode terminal is formed at the concave

portion between the cylindrical bodies.

4. The DC adapter according to claim 3, wherein the electrode terminal is a negative terminal, and when the adapter main body is inserted into the battery housing portion, the electrode terminal comes into contact with a negative electrode formed in the battery housing portion before a positive terminal formed on the insertion side end surface of the cylindrical body comes into contact with a corresponding electrode.

5. The DC adapter according to claim 3, wherein the height of the electrode terminal does not exceed the line segment contacting the plurality of the cylindrical bodies.

6. The DC adapter according to claim 1, wherein one of the adjacent projecting first and second surfaces constituting the insertion limiting portion extends in the tangential direction at the proximal end on the adapter main body.

7. An electronic apparatus comprising a battery housing portion into which a DC adapter which is connected to a cylindrical primary battery, a cylindrical secondary battery, or AC/DC converter to supply the electronic apparatus with a DC power is inserted, wherein

the battery housing portion includes an insertion guide portion which is formed by cutting, in a rectangular shape, a part of the circular inner circumferential wall thereof to meet the shape of an insertion limiting portion formed by projecting a part of the outer circumference of the DC adapter and is

engaged with the insertion limiting portion when the DC adapter is inserted with the proper polarity to guide the insertion of the DC adapter,

the center angle of the circular arc obtained by connecting the proximal ends of two sides constituting the insertion guide portion on the inner circumference of the battery housing portion is less than 90°, and

when the DC adapter is inserted with the reversed polarity, the insertion limiting portion comes into contact with the insertion end side wall of the battery housing portion and the insertion of the DC adapter is limited.

8. The electronic apparatus according to claim 7, wherein

the battery housing portion includes:

a plurality of housing portions which houses a plurality of primary batteries or secondary batteries, or an assembled battery obtained by arranging in an integrated manner the secondary batteries in the direction perpendicular to the longitudinal direction;

a first electrode formed on each of the housing portions; and

a second electrode which contacts a second electrode terminal formed on a concave portion of the DC adapter including: a plurality of cylindrical portions arranged in the direction perpendicular to the longitudinal direction to meet the shape of the housing portions; a first electrode terminal formed on one of the cylindrical portions; and the concave portion formed between the cylindrical portions,

the second electrode being formed between the housing portions to face the movement path of the electrode terminal.

9. The electronic apparatus according to claim 8, wherein
the first electrode is positive and second electrode is negative, and
when the DC adapter is inserted into the battery housing portion, the second
electrode comes into contact with the second electrode terminal before the first
electrode comes into contact with the first electrode terminal formed on the
cylindrical portion.

10. The electronic apparatus according to claim 8, wherein
the first electrode terminal is the projected positive terminal and the insertion
end side surface of the cylindrical portion on which the first electrode terminal is
not formed has a flat portion the height of which is less than the first electrode
terminal, and

the housing portion supports the flat portion by means of an elastic member
which supports the negative electrode of the primary or secondary battery.

11. The electronic apparatus according to claim 7, wherein one of the first and
second surfaces which are obtained by cutting, in a rectangular shape, a part of the
circular inner circumferential wall and constituting the insertion guide portion
extends in the tangential direction at the proximal end on the inner circumference
of the battery housing portion.

12. The electronic apparatus according to claim 7, wherein the vertex of the

insertion guide portion is chamfered in a circular arc.